MEAU
Industrial Computers

MITSUBISHI ELECTRIC
Mitsubishi Electric Automation, Inc.

MC100

RACK MOUNT COMPUTERS

(Manual Part Number MAN-RCKPC-001)

Manual P/N MAN-RCKPC-001

Designed, and Manufactured specifically for Mitsubishi Electric Automation, Inc., by AVG

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WARNING!

Programmable control devices such as Rack Computers must not be used as stand-alone protection in any application. Unless proper safeguards are used, unwanted start-ups could result in equipment damage or personal injury. The operator must be made aware of this hazard and appropriate precautions must be taken.

In addition, consideration must be given to the use of an emergency stop function that is independent of the programmable controller.

The diagrams and examples in this user manual are included for illustrative purposes only. The manufacturer cannot assume responsibility or liability for actual use based on the diagrams and examples.

Trademarks

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Manual Organization

The table, below provides an overall description of the topics covered within this manual.

Chapters

1	**Introduction**	Provides Manual Organization, what is provided with the unit. Introduction to the Industrial Rack Mount Computer. Discusses how to get help with questions or problems you might encounter.
2	**Models and Equipment**	Provides you with key features of the Rack Mount Computer. Lists the optional equipment available.
3	**Specifications**	Specifications provide detailed information. Included are connector and expansion card information, CPU type; service power requirements; operating and storage temperatures; available memory; serial communications specs; dimensions, weight, etc.
4	**Installation**	Shows the dimensions for the Rack Mount Computer.
5	**External Components**	Provides location and description of the available connectors and expansion card slots.
6	**Communication Setup**	Instructions on how to set up the Rack Mount Computer communications.
7	**Maintenance and Upgrades**	Provides instructions on expansion card installation and explains basic maintenance.

Introduction

The Mitsubishi Electric Automation MC100 Rack Mount Computer is a non-display type package that can easily run visual, maintenance, information, and control software. Packaging this computer with one of our vibrant LCD displays produces a workstation with the power to direct machine processes, collect critical data, and communicate with the front office for high level production interaction.

The MC100 is a full-featured computer able to withstand harsh environments. It has the advantage of rugged design, high performance, and easy access for upgrade or maintenance. MC100 Series Computers are intended for applications requiring the highest reliability, as with all Mitsubishi electronic components.

The MC100 Series computer features a 850 Mhz Intel Pentium III processor single board computer, with standard models providing the necessary computing power for any of today's most popular applications, with optional capability of the high power computing processors. It is housed in a rugged 4U industry standard size steel enclosure.

Operating systems are included as part of every package. Optional operating systems and application software can be installed upon request, providing an "Out of the Box" solution for your custom application. The computers are CE, UL/CUL & FCC Class I compliant, and are rated to operate from 0 to 50 ºC, at a noncondensing humidity of 10–95%.

This manual will take you through the steps necessary to get your Standard 19-inch Industrial Rack Computer installed and running in the shortest possible time. This manual covers Model MC100.

Following are some of the Industrial Rack Mount Computer standard design features:

- ***Computer system board is run by an Intel Pentium III microprocessor.***
- ***Windows XP Pro (installed) operating system.***
- ***CD ROM 48x type (minimum)***
- ***2 Serial Ports, 1 dedicated RS-232 and 1 RS-232/422/485 selectable***
- ***2 USB ports***
- ***XVGA output (60 feet maximum)***
- ***1.44 MB floppy disk drive***
- ***PS/2 mouse connector***
- ***PS/2 Keyboard connector***
- ***Each unit provides 6 slots for expansion cards***
  — 3 PCI — 2 ISA — 1 PICMG
- ***40 Gb hard disk drive***
- ***Rack Mount - 4U Industry Standard size steel enclosure***

What you need to get started:

Hardware

- Industrial Rack Mount 19-inch Computer, Model MC100

Software

- Windows XP Pro (installed)

Technical Support

If you are having difficulty with a particular aspect of installation or setup, technical support is available at **1-800-950-7781 (Auto Attendant, Option 4) or visit our website at *www.meauic.com.***

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Model Number/Description

MC100 19" 4U Industrial Rack Mount Computer

Accessories and Optional Software

There are replacement parts and other optional equipment available to customize or upgrade the Rack Mount Computer to fit your application. The following tables provide you with a list of this equipment.

Accessories	
Product	**Part Number**
32MB Disk on Chip Flash Memory	MC600
64MB Disk on Chip Flash Memory	MC601
128MB Disk on Chip Flash Memory	MC602
256MB Disk on Chip Flash Memory	MC603
40GB HDD	MC610
256MB MEM	MC615
512MB MEM	MC616
Standard Keyboard	MC620
Keyboard with Trackball	MC621
Multimedia I/R board	MC622
19" R/M Industrial Membrane Keyboard	MC623
2 Button Mouse	MC624
Modem, PCI, 56K V.90	MC630
2-way Video Splitter/Repeater	MC635
Shielded Video Cable - 6'	MC640
Shielded Video Cable - 10'	MC641
Shielded Video Cable - 30'	MC644
Shielded Video Cable - 60'	MC646
RS-232 Serial Cable - 6'	MC651
RS-232 Serial Cable - 10'	MC652
RS-232 Serial Cable - 30'	MC655
RS-232 Serial Cable - 60'	MC656

Optional Software	
Product	**Part Number**
Windows NT 4.0 Workstation	MC701
Windows 2000 Server	MC702
Windows 2000 Pro	MC703
Windows XP Pro	MC704
MS DOS	MC706
LINUX Server	MC707
LINUX W/S	MC708
Windows NT/e (Embedded)	MC710
Windows XP/e (Embedded)	MC711
Windows CE 3.0 (Embedded)	MC712
VX Works	MC713
Microsoft Access	MC750
Microsoft Office	MC751
Microsoft Excel	MC752
Procomm	MC760
PC Anywhere	MC761
Norton Anti-Virus	MC762
MacAfee Anti-Virus	MC763

COMPUTER SPECIFICATIONS:

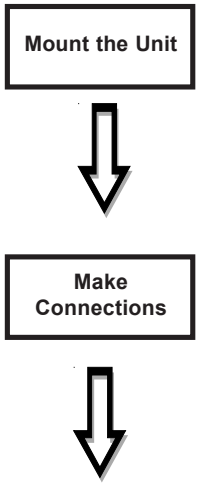
CPU Type:	Intel Pentium III (850 Mhz minimum)
Memory:	256 MB (Expandable up to 512 MB)
BIOS:	Flash ROM
Main Drive:	40 Gb Hard Disk Drive
SSD:	(Optional SDD Disk on Chip – 64 MB Minimum, Expandable to 256 MB)
Serial Ports:	1 dedicated RS-232 port, 1 RS-232/RS-422/RS-485 port
Parallel Port:	SPP/EPP/ECP supported, Configurable to LPT1
LAN:	10 Base-T/100 Base-TX Ethernet
USB:	2 ports (1.1 compliant))
PS/2 Interface:	One PS/2 Mouse port on front of unit and one PS/2 Mouse port on rear of unit (you can only use one port at a time)and one PS/2 Keyboard Port (rear)
VGA Output:	XVGA Output (60 ft. maximum)
Floppy Drive:	1.44 MB
CD ROM:	48x type (minimum)
Operating System:	Windows XP Pro OS (Standard)
Watchdog Timer:	12 level timer with timeout intervals from 0.5 –30000 seconds

MECHANICAL SPECIFICATIONS:

Housing Material:	Rack Mount 4U heavy duty steel — MEAU Black
Connectors:	Serial Ports: Two D-Sub 9-pin (male) Parallel Port: One D-Sub 25-pin (female) Keyboard and Mouse Ports: Two PS/2 (rear) and One PS/2 (front) One RJ-45 for Ethernet; One D-Sub 15-pin (female) forVideo; Two USB
Dimensions:	18.986" W x 6.929" H x 21.0" D (482.244 x 175.997 x 533.40 mm)
Weight:	17.0 kg
Expansion Slots:	6 Open Slots for expansion cards — 3 PCI, 2 ISA, 1 PICMG;
Power Supply:	ATX 250 Watts, AC 115/230 VAC 50-60 Hz
Cooling Fan:	Supported, washable air filter
Environmental:	**Operating Temperature**: 0 to 50 °C (32 to 122 °F) **Humidity:** 10 to 95% non-condensing **Agency Approvals:** CE Mark, UL/CUL, FCC compliant

INSTALLING THE MC100 RACK MOUNT COMPUTER — OVERVIEW

Installing the Rack Mount Computer requires the following three major steps:



The MC100 Rack Mount Computer is a rack mount unit with handles for easy removal and portability. Mounting of the unit requires drilling 4 holes in the mounting surface for the mounting studs. Please see the *Mounting* chapter beginning on page 10 for mounting diagrams and instructions.

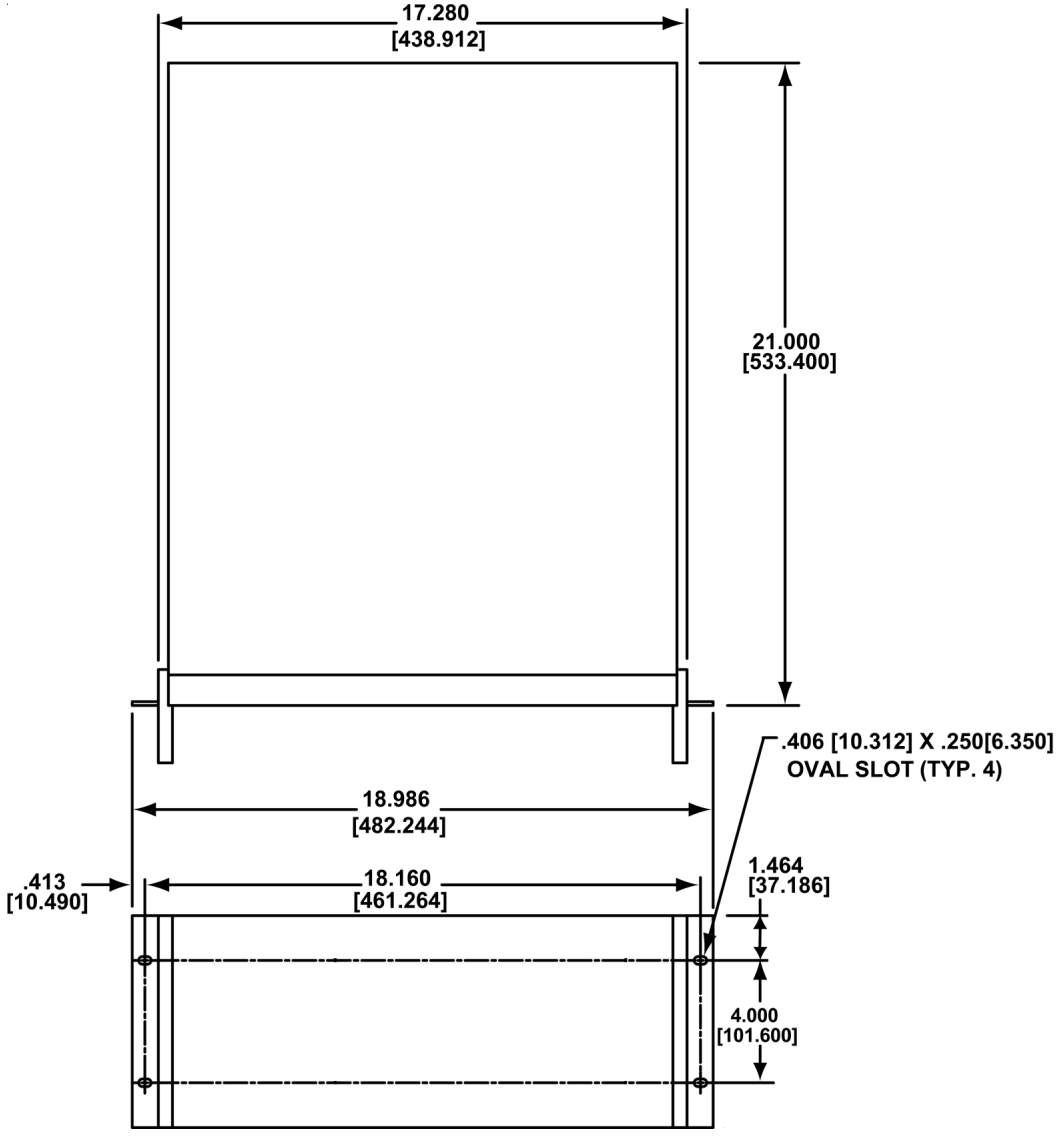
Now that your Rack Mount Computer is installed, you are ready to connect your unit to the power source and peripheral devices. The Rack Mount Computer's Serial Ports support one RS-232 and one RS-232/RS-422/RS-485 connector. The Parallel Port supports SPP/EPP/ECP. There are two USB Ports (1.1), and one Video Port that supports up to XVGA Resolution. Note that the Rack Mount Computer can be powered by 115 VAC or 230 VAC. See the section on *External Components*, beginning on page 12 for further information. To install an expansion card, see the Upgrades and Maintenance chapter beginning on page 18.

Once you have the Rack Mount Computer installed, and a monitor and any peripheral devices you require for your application connected, you are ready to power up the computer and establish communications. Refer to page 16.

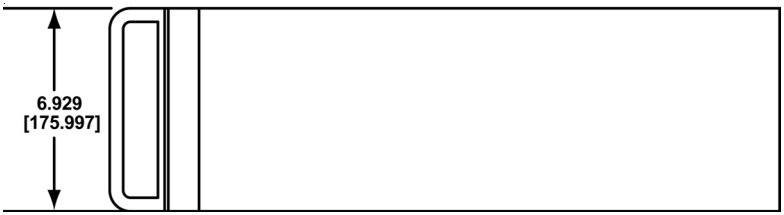
Mounting

The Rack Mount Computer is mounted on a rack. The following diagrams show the outline and cutout dimensions necessary to mount the panel using the studs.

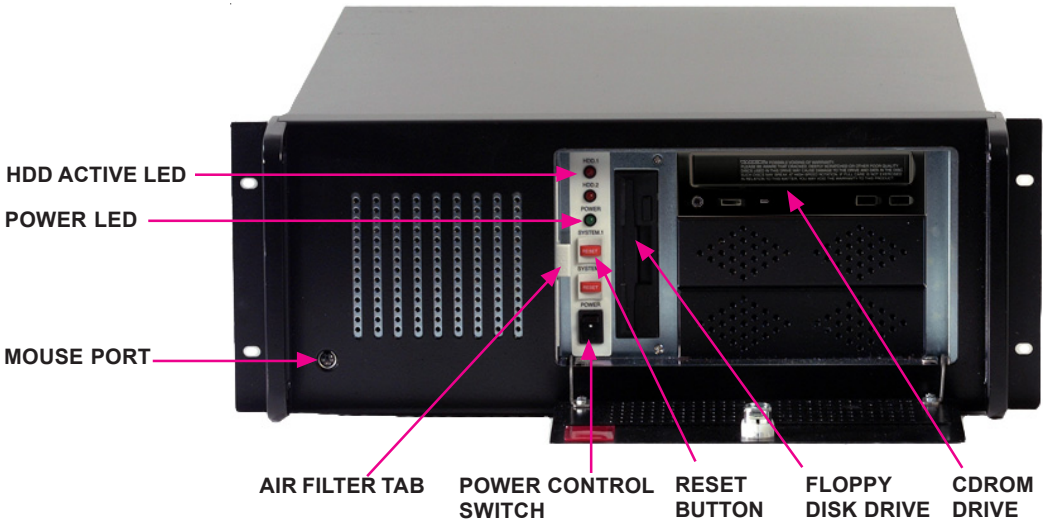
19-inch Industrial Rack Mount Computer — Model MC100 — Outline Dimensions



19-inch Industrial Rack Mount Computer — Model MC100 — Outline Dimensions



FRONT Panel Components



To access the front panel components, unlock and open the panel door. Located on the front of the Rack Computer are the following components.

HDD Active Indicator
Labeled HDD1, the first green LED indicator will illuminate when the Hard disk drive is being accessed (is active). (HDD2 is not used)

Power LED
Next to the Power Control push button is a green LED indicator. It will illuminate when the computer is on.

Mouse Port
PS/2-compatible mouse port. (There is also a mouse port on the rear panel, but you can only use one port at time.)

Air Filter Tab
The system fan air filter can easily be removed, washed to remove contaminants, and then replaced. Simply pull the air filter retainer by the white plastic tab (shown above) and slide filter out.

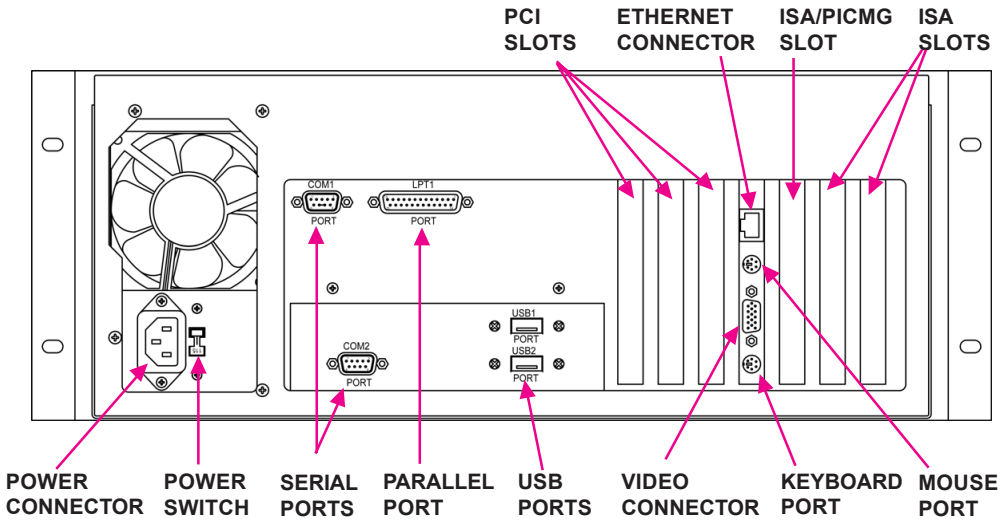
Power Control Switch
Use the Power Control switch to turn on the computer.

Reset Button
Push the Reset button Labeled SYSTEM 1 to restart the system. (SYSTEM 2 button is not used).

Floppy Disk Drive
The computer is equipped with a 1.44 MB Floppy Disk Drive.

CDROM Drive
The computer is equipped with a 48x (or faster) type CD ROM Drive.

REAR Panel Components



Located on the rear of the computer are the following components:

Power Connector
Connects to power cord.

Power Switch
Switches computer power to 115 or 230 VAC.

COM1, COM2
These serial port connectors are 9-pin male D-Sub type sockets. COM1 is a dedicated RS-232 port. COM2 is a RS-232/RS-422/RS-485 port. The manufacturer's default for COM2 is RS-232. To select RS-422 or RS-485, refer to manual MAN-ACZ85-001 for jumper settings.

Parallel Port Connector
Parallel Port (LPT1) is a 25-pin male D-Sub connector that is used to connect to a printer.

Two USB (Universal Serial Bus) Connectors
There are two USB connectors located on the rear of the unit. Many devices now use this type of connector (i.e., scanner, printer, mouse, etc.). One or both may be used.

Video Connector
A 15-pin D-sub female connector for attaching a monitor to the Rack Computer. Supports up to 1600 x 1200 in 8-bit color resolution.

Mouse Connector
A personal system/2 (PS/2)–compatible mouse port.

Keyboard Connector
A personal system/2 (PS/2)–compatible keyboard port.

Ethernet Connector
10/100–megabit-per-second (Mbps) network interface controller (NIC) provides all the functions of a separate network card with Wakeup on LAN technology. The NIC supports both the 10BASE-T and 100BASE-TX Ethernet standards. This is an RJ-45 connector.

EXPANSION CARD SLOTS

PCI Slot 1
PCI Slot 2
PCI Slot 3
The Rack Mount Computer will support the addition of three 32-bit PCI (Peripheral Component Interconnect) Cards if you want to upgrade your system.

CPU Slot 4
This slot is used by the CPU board.

PICMG/ISA Slot 5
This slot can be used by one PICMG (PCI Industrial Computer Manufacturers Group) Card or one ISA Card.

ISA Slot 6
ISA Slot 7
The Rack Mount Computer will support the addition of two ISA (Industry-Standard Architecture) Cards if you want to upgrade your system.

Once you have the Rack Computer installed, a monitor and any peripheral devices you require for your application connected, you are ready to power up the computer. Press and release the Power Control Switch located on the front panel of the computer (shown on page 12).

Consult the ACe-Z85 Embedded Processor Board Manual, part number MAN-ACZ85-001 to set up your Industrial Rack Computer's BIOS.

Upgrades

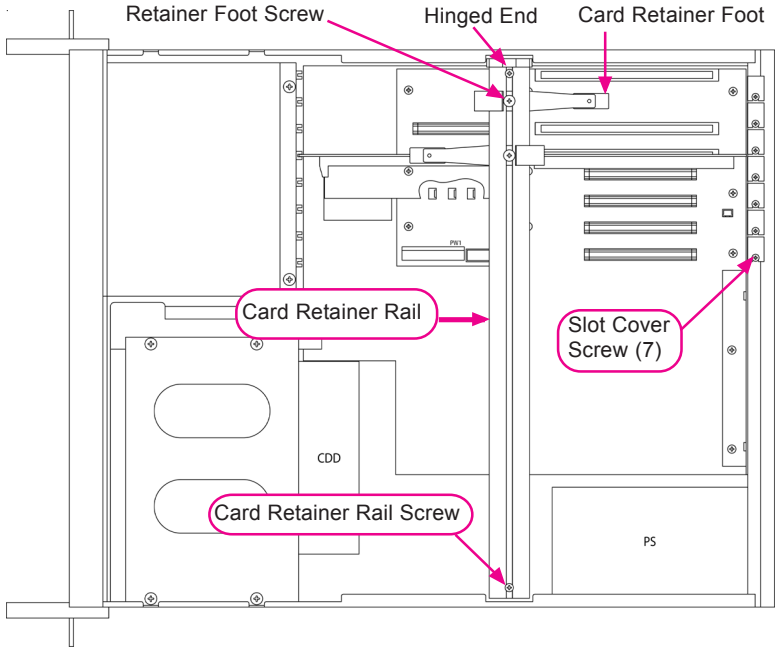
CAUTION: Before opening the Computer or handling any expansion cards, be sure to protect the equipment from electrostatic discharge (ESD) by properly grounding yourself.

Expansion Card Installation

The Rack Mount Computer can accommodate up to 3 PCI expansion cards, 2 ISA expansion cards and one PICMG expansion card. To install an expansion card:

1. Disconnect the power source from the Rack Mount Computer.

2. Open the enclosure to install the expansion cards, by removing the two thumb screws at the top of the rear panel that secure the housing cover. Lift the housing cover off of the chassis.



3. Remove the screw that secures one end of the card retainer rail and lift up. (The rail is hinged on the other end.)

4. Remove and set aside the screw that secures the slot cover where the expansion card will be installed. Remove and discard cover.

5. Insert the expansion card into the backplane connector and reinstall the screw to secure the card's end plate to the chassis.

6. Swing card retainer rail back into place and secure with screw.

7. Align the groove in the bottom of one of the retainer feet over the edge of the card you have just installed.

8. Tighten retainer foot screw into the rail to secure the card.

9. Replace the housing cover, tighten the thumb screws, and then reconnect the power source.

Maintenance

Preserving Data

Viruses can corrupt files; files can be inadvertently deleted; and hard-disk drives can fail after extended used. To avoid data loss, regularly back up the data files on the hard-disk drive. If you lose the contents of your hard-disk drive, you can reinstall programs, but your data files will be lost if you don't have a backup. AVG recommends you back up the hard-disk drive at least once a week, with a daily backup of those files that have been changed.

Cleaning System Components

Internal Components

As it draws in air to cool the computer, the power supply fan can also draw dust and other particles into the computer. This debris buildup increases the system's internal temperature and interferes with component operation and life of the computer.

To avoid this, your Rack Mount Computer has been equipped with a washable air filter. We recommend that you wash this air filter once every 3 months. Change or wash the filter more often if the environment exposes the computer to excessive amounts of dust and debris.

To clean diskette drives, use a commercially available cleaning kit. These kits contain pretreated diskettes to remove contaminants that accumulate during normal operation.

DO NOT attempt to clean drive heads with a swab. You may accidentally misalign the heads, and render the drive inoperable.

External Components

To clean the exterior computer cabinet, perform the following steps:

1. Place a grounding strap around your wrist to reduce the effects of electrostatic discharge (ESD).
2. Turn OFF the computer and any attached devices.
3. Use a small vacuum cleaner to remove any dust from the slots and holes on the computer.
4. Moisten a soft cleaning cloth with a solution of water and liquid dishwashing detergent.

DO NOT SOAK the cloth in the solution—you must not let the solution drip inside the computer.

5. Use the damp cloth to wipe the computer housing.

MITSUBISHI ELECTRIC AUTOMATION, INC.

Error / Improvement Report

Fill in this form and fax or mail to:

Mitsubishi Electric Automation, Inc.
Attn: HMI Marketing
500 Corporate Woods Parkway
Vernon Hills, IL. 60061
Fax: (847) 478-2253

For Mitsubishi use only:

Date Received:
Date Responded:
Status:

Name _____

Company _____

Phone Number _____

Manual / Product / Brochure _____

Version _____

Description of request ☐ **Error** ☐ **Improvement**

(Please describe in detail the reported error(s). Use additional paper, or attachments (if needed.)

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Suggested Solution

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